

admirably in covering raw features like stumps, will have to be disciplined.

With the basic landscape design set, the Laurel, Rhododendron, Stewartia, and other wild shrubs and ferns thriving, it is sheer pleasure in the spring to add clumps of wild flowers in suitable spots. A new drift of bird-foot violets and a broad colony of yellow *Trillium* surrounded by ferns are adequate reward for all the effort and patience expended on the plantings.

My 2,000 ferns seem all too few and I can see myself trailing the bulldozers which soon will come to tear a cut through the wonderful talus slope overlooking Fall Creek, and bringing home another 2,000 ferns for a new area. I may even get them planted if the increasing flood of visitors, wishing to see my wild garden, does not keep me talking away all of the daylight hours.

OZONE, TENNESSEE

### ***Isoetes echinospora* var. *braunii* in Interior Alaska**

VERNON L. HARMS

*Isoetes echinospora* Dur. var. *braunii* (Dur.) Engelm. (including var. *maritima* and var. *truncata*) has previously been reported in Alaska only from the Pacific Coast regions of the Aleutian Islands, Kodiak Island, and southeastern Alaska (*Fig. 1*). A collection of *Isoetes* made by Eyerman in 1939 from Prince William Sound, Alaska, was referred by Boivin (1961) to *I. asiatica* (Makino) Makino (*I. echinospora* var. *asiatica* Makino), apparently representing the first report of this entity in North America. In northwestern Canada, distributional records for *I. echinospora* var. *braunii* have been cited (*Fig. 1*) for northeastern Alberta from Lake Athabasca (Porsild, 1943), for Mackenzie District from Prelude Lake near Yellowknife (Thieret, 1963) and Great Bear Lake (Porsild, 1943), and for southeastern Yukon from Sheldon Lake along the Canol Road (Porsild, 1951). The latter collection was noted by Porsild as con-



stituting "a considerable extension of the northwestern range of the species."

During August, 1964, I collected several plants of *Isoetes echinospora* var. *braunii* at George Lake in Interior Alaska ( $63^{\circ}46'N$ ,  $144^{\circ}35'W$ ) about 40 miles southeast of Delta Junc-

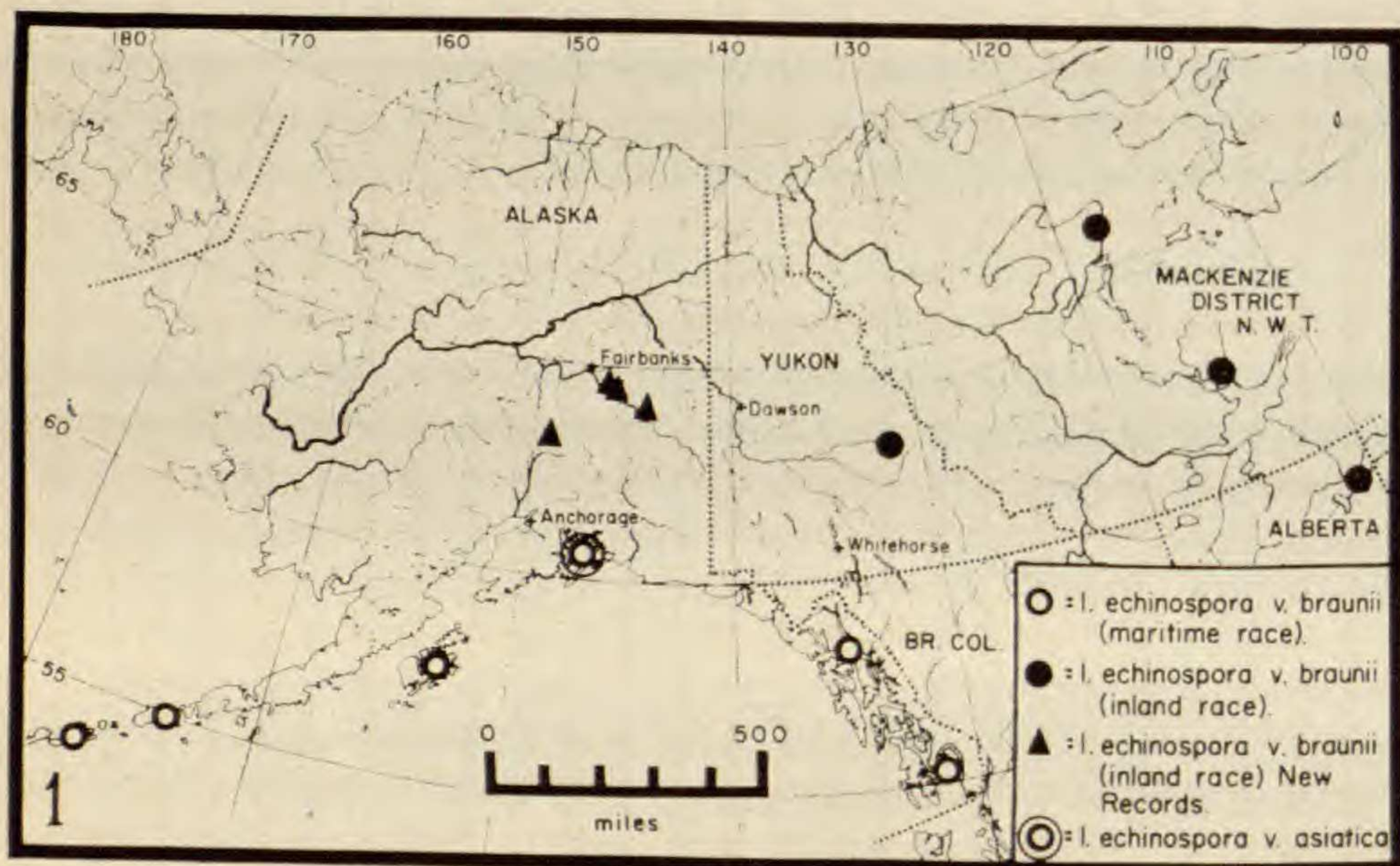


FIGURE 1. KNOWN DISTRIBUTION OF ISOETES IN NORTHWESTERN NORTH AMERICA.

tion, alt. ca. 1275 ft. (*Harms* 3173-B). Subsequently, while working through previously unidentified or unprocessed materials at the University of Alaska Herbarium, I encountered the following additional specimens of this entity from Interior Alaska: Harding Lake ( $64^{\circ}25'N$ ,  $146^{\circ}52'W$ ), ca. 50 mi. SE of Fairbanks, alt. 800 ft., 21 Aug. 1951, *Brina Kessel*; Harding Lake, 15 Sept. 1953, *Galen Smith* 2283; Birch Lake ( $64^{\circ}18'N$ ,  $146^{\circ}40'W$ ) ca. 60 mi. SE of Fairbanks, alt. 800 ft., 15 Sept. 1963, *Galen Smith* 2274; and an alpine lake near Summit on the Alaska Railroad, Alaska Range ( $63^{\circ}20'N$ ,  $149^{\circ}08'W$ ) alt. ca. 2400 ft., 4 Sept. 1953, *Galen Smith* 2205. It is of interest that the label on the latter specimen indicates that the plant was "common" in the



area. All of the specimens cited above are deposited in the University of Alaska Herbarium.

The Harding Lake locality in Interior Alaska represents a significant 500-mile westward extension of range for *Isoëtes echinospora* var. *braunii* from Porsild's Sheldon Lake site and about an equal extension northward from Kodiak Island (Fig. 1). It would represent at least a 250-mile extension north of the aforementioned Prince Williams Sound locality of var. *asiatica*. This taxon may eventually prove to be far more widely distributed in Alaska and the Yukon than formerly supposed.

Most of the *Isoëtes* specimens from Interior Alaska clearly belong to the inland *braunii* (or *truncata*) type, which both Boivin (1961) and Löve (1962) included under *I. echinospora* subsp. *muricata* (Dur.) Boivin var. *braunii* (Dur.) Engelm. However Galen Smith's collection (#2274) from Summit, in the Alaska Range, could possibly be referred to the Pacific Coast var. *maritima* on the basis of its shorter leaves averaging only 4.4 mm (2.4-6.2 mm), more stomata on the leaves, and the somewhat shorter, thicker, and blunter spines on the megaspores. All previous collections in Alaska, excepting Boivin's (1961) report of var. *asiatica* at Prince William Sound, have been referred to var. *maritima* (Hultén 1941, 1960). Boivin (1961) submerged var. *maritima* under var. *braunii*, not considering it worthy of taxonomic recognition, but Löve (1962) gave it subspecific rank as *I. echinospora* subsp. *maritima* (Underw.) Löve. Since many of the plants from Summit, and at least some from Harding Lake and George Lake, could have been assigned almost as easily to var. *maritima* as to var. *braunii*, a really clear-cut distinction between these supposed taxa, at least in Alaska, seems doubtful. Thus, I would tend to accept Boivin's viewpoint that they should be merged and henceforth will refer to them merely as the "maritime" and "inland" races of *I. echinospora* var. *braunii* respectively without necessarily implying the existence of taxonomically meaningful differences between them. However, in possible support of Löve's taxonomic interpretations, it should



be pointed out that intermediates between subspecies or geographical varieties are to be expected where, and if, their ranges meet. I do not know how consistent the reported differences between the "maritime" and "inland" races of *I. echinospora* var. *braunii* are elsewhere, but the intermediacy of Interior Alaskan populations may be attributable to the fact that Alaska probably represents the past, and perhaps even the present, geographical connection between these races which have previously been thought disjunct in their distribution. I suspect, but at present can hardly substantiate, that in Interior Alaska there may be a positive correlation of both the altitude above sea level and the depth of submergence under water with the degree of morphological approach that plants of the "inland" race make to the "maritime" race (i.e., shorter leaves and blunter megaspore spines). The 21 individual plants from Interior Alaska included in the five above-cited collections of this species still represent too small a sampling to warrant many taxonomic conclusions.

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